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SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE • JANUARY 22, 1944



New Horizons for China

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A SCIENCE SERVICE PUBLICATION

THE SEARCH THAT NEVER ENDS



IN THE industrial life of America, research has been of constantly increasing importance. And today it is a national resource, for the research of industrial and college laboratories is proving its value in War.

To the Bell System, research is an old idea, for the telephone itself was born in a laboratory. Behind its invention, sixty-nine years ago, were researches in electricity and acoustics and in speech and hearing.

And, ever since, there has been a laboratory where scientists have searched to know more about these subjects; and with their associated engineers have applied the new knowledge, fitting it with all the old, to make the telephone better and better.

Their fields of inquiry have broadened and deepened through these years; they inquire into all the sciences and engineering arts which have any promise of improving the telephone. Much has been learned but still more will be, because their search goes on. That is why the telephone laboratory grew to be Bell Telephone Laboratories, Incorporated, today the largest industrial laboratory

in the world. And it exists to improve telephone service.

Improvements in industry can be left to chance in the hope that some one, sometime, will think of something useful; that some good invention will turn up.

The other way to make improvements is to organize so that new knowledge shall always be coming from researches in the fundamental sciences and engineering arts on which the business is based. From that steady stream will arise inventions and new methods, new materials and improved products.

This is the way of Bell Laboratories. Its search will never end. And as fast as it can the Laboratories will apply its new knowledge practically to the design of equipment and communication systems.

At present — and this started before Pearl Harbor — its trained scientists and engineers and all their skilled associates are concentrating on products of importance to our armed forces. But when this work is happily over they will be ready to continue their developments for the needs of peace.



BELL TELEPHONE SYSTEM

"Research is an effort of the mind to comprehend relationships no one has previously known; and it is practical as well as theoretical." . . . BELL TELEPHONE LABORATORIES

MEDICINE

Combatting Heart Disease

Penicillin and heparin, anti-blood clot chemical, show promise of conquering one almost always fatal form, endocarditis caused by germ infection.

► HOPE that a combination of penicillin and heparin, an anti-blood clot chemical, may conquer one almost always fatal form of heart disease appears in a report by Dr. Leo Loewe, Dr. Philip Rosenblatt, Dr. Harry J. Greene and Mortimer Russell, of the Jewish Hospital, Brooklyn, N. Y. (*Journal, American Medical Association*, Jan. 15)

Seven patients suffering from subacute bacterial endocarditis, one of them actually dying, were all restored to health by the combination of heparin and penicillin. Whether they have been cured cannot be told until more time has elapsed. Sometimes patients with this disease appear to recover and remain free from symptoms for some time, only to relapse and die.

This kind of heart disease is due to germ infection. The germs grow on the lining membranes of the heart in clumps mixed with fibrin from the blood. Successful treatment has to be double-barreled, aimed at both the germs and the

tendency if the blood to form clots in which the germs can grow.

Heparin for fighting the blood-clot tendency and both penicillin and sulfa drugs to fight the germs have been tried before, but the results have been mostly disappointing.

The Brooklyn scientists have devised a new technique for giving heparin—that of depositing it in banks under the skin instead of putting it directly into the blood stream. The combination of this method of giving heparin plus large doses of penicillin is, they believe, responsible for the good results they obtained.

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CHEMISTRY

New Versatile Plastic Made from Cheap Gas

► A NEW, highly versatile plastic, named polythene, has been developed by Du Pont chemists and is now ready for

the market in commercial quantities—provided necessary allocations for war purposes can be shown by the processor. It is stated to possess physical qualities that will make it useful in such peacetime employments as toothpaste tubes, wire insulation, water-proof coatings, piping and adhesives. In thin sheets it is flexible without being limp and rubbery, while in thicker shapes it is stiff enough to be classified as a rigid plastic.

Polythene is made by the polymerization, or chemical welding, of large numbers of ethylene molecules. Ethylene is a gas derived from petroleum, natural gas and coal, hence is a cheap, easily obtainable raw material.

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CHEMISTRY

Role in Public Affairs Urged Upon Chemists

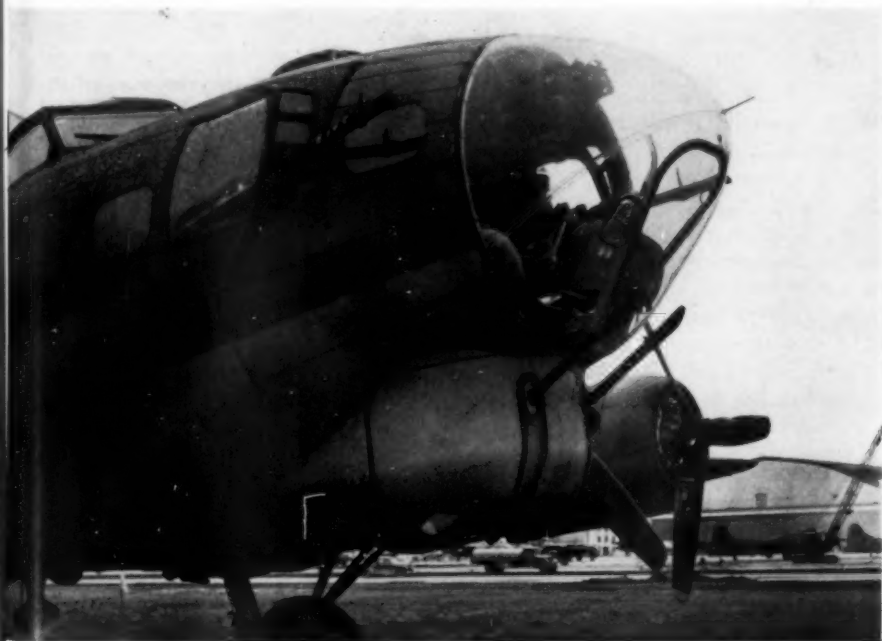
► CHEMISTS should carry their knowledge of chemistry into the everyday affairs of their lives as citizens, declared Gaston F. Dubois, vice-president of the Monsanto Chemical Company, in his address in New York as recipient of the Perkin Medal, one of the highest awards in American chemical science. Such public activity on the part of scientists, he stressed, must not take on the aspect of lobbying, but should be a simple and direct expression of civic spirit.

Mere negative criticism of governmental activities gets nowhere, the speaker pointed out, characterizing it as "useless and unbecoming." If any group of people do not like the way things are being done, it is up to them to make their criticism constructive by pointing out possible better ways.

Chemists, as such, are entitled to an attentive hearing on public questions where their knowledge is pertinent, Mr. DuBois held, because of the great importance of chemistry in everyday life, and its supreme importance in time of war. He went back to World War I for an illustrative case in point:

"Thirty years ago there was a belief that the business of dealing with chemicals was something for the British and Germans, but not for Americans. The public in the United States did not know much about chemistry or chemists. The press, our statesmen, our bankers, did not care.

"Even as late as 1916, Hossenfelder, the German consul general in New York, in a letter to von Bethman-Holl-



WHISKERS—The bristling guns on this new Boeing B-17 chin turret remind you of the whiskers on a cat. Official U. S. Army Air Forces photograph.

weg, German chancellor, predicted American defeat in World War I because of our dependence on Germany's chemical industry. But he was wrong—we did start making chemicals and World War I demonstrated to us not only their usefulness, but that our industry was indispensable to this great nation. Today the acceleration in the rate of growth of our industry is such that no one can keep even superficially informed of our progress in all lines."

CHEMISTRY

New Tungsten Process

Pure, war-essential metal may be obtained directly from ore by electrolytic method which does not require preliminary transformation into alkali tungstate.

► **PURE TUNGSTEN**, much used in war metals, may be produced directly from tungsten ore by a new method which is successful, at least, in the laboratory. The new process, in which crystalline tungsten is produced electrolytically from a fused borate or phosphate bath, using tungsten ore as the direct source of tungsten, was developed by Dr. Colin G. Fink of Columbia University and Chuk Ching Ma of the Westinghouse Lamp Company, Bloomfield, N. J., and reported by them to the Electrochemical Society.

In the process the tungsten in the ore used does not require preliminary transformation into alkali tungstate as in older processes. The new method may be applied to low-grade ores as well as to high-grade ores or concentrates. The method is technical but is commercially usable and economical.

Tungsten today occupies a major position among strategic minerals. Few metals have so rapidly increased in importance within the past 20 years. It is used as a pure metal, as an alloy constituent in hard steels and other metals, and in chemical compounds. Tungsten is used in high-speed tool steels and in cemented

Mr. DuBois, now in his 64th year, was born in Switzerland and came to this country in 1904 to carry on research in industrial chemistry for the Monsanto firm. His work has ranged all the way from making synthetic vanilla flavoring to phenol; recently he has concerned himself especially with the many kinds of plastics that can be built out of the latter compound.

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carbides. Tungsten carbide tools, used in thousands of machine shops producing war equipment, have extreme hardness, being surpassed only by boron carbide and diamonds. Tungsten is used for filaments in incandescent electric lamps, as electrodes for hydrogen welding, electric contacts in automobile engines, and has many other uses.

This metal has a fortunate combination of physical properties. These include tensile strength, hardness, ductility, corrosion and erosion resistance, and a very high melting point, 3,370 degrees Centigrade, the highest of all metals.

The United States mines tungsten ores in Arizona, California, New Mexico, Colorado, Idaho, Nevada, Montana and Washington. Its principal supply has been imported. In 1940, China furnished 46% of the imports, Bolivia 20%, Argentina 10%, and Australia and Portugal 6% each. With much of the China ore no longer available, steps have been taken to secure increased amounts, particularly from Bolivia and from local reserves. The new process, in which low-grade ores may be used, will undoubtedly increase the use of local minerals.

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the spine. All the mothers recovered and all the babies cried lustily immediately after delivery and none needed resuscitation. One baby, born three and one-half months prematurely, died eight hours after birth, but its death was not believed attributable to the anesthetic.

Absence of nausea and smooth convalescence without discomfort after the operation impressed both the doctors, the mothers and their families. Mothers who had had previous cesarean operations under inhalation anesthesia were particularly enthusiastic about the new meth-

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MEDICINE

For Cesarean Births

► **SUCCESSFUL** use of the new childbirth anesthetic method, continuous caudal analgesia, in 48 out of 50 cases of cesarean births is reported by Dr. Clifford B. Lull and Dr. John C. Ullery, of

Philadelphia. (*Journal, American Medical Association*, Jan. 8)

The two failures were due to inability to introduce the pain-killing chemical into the correct spot near the base of

od, as were their families when the mothers returned to their rooms in a cheerful, wide-awake condition.

The Philadelphia doctors endorse the new anesthetic method "as the nearest thing to safe and painless childbirth that we have in our obstetric armamentarium," but agree with the originators of the method, Dr. Robert A. Hingson and Dr. Waldo B. Edwards, of the U. S. Public Health Service, that it should be used only by competent, specially trained persons.

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MEDICINE

Hip Baths Improve Vision

Muscle coordination is also aided by spraying hot, then cold water over lower part of trunk. Recommended for routine patrol duty and factory work.

► COLD HIP BATHS for men doing routine patrol duty or monotonous tasks in factories where acute vision and good muscular coordination "may spell the difference between success and disaster" are suggested in *War Medicine* (December, 1943), published by the National Research Council and the American Medical Association.

The suggestion comes from Dr. Arthur H. Steinhaus and Albert Kelso, of George Williams College, Chicago, with the technical assistance of Viktor Reinhardt. Mr. Reinhardt recently received training in the procedure in Germany where it was perfected as a conditioning device for men in industry and in the air force.

The cold hip baths produce striking temporary improvement in visual functions involving binocular vision, in visual acuity and in critical fusion frequency. They also produce temporary improvement in the rate at which a person can tap a telegraph key and in eye to leg muscle reaction time as shown by automobile driver reaction tests.

Men who took the baths regularly reported feeling exhilarated. Some said that the visual field appeared brighter, that black objects looked blacker and white ones whiter.

Unlike pep pills there is no after-depression or "pay-off" period. The stimulating effect of the cold hip bath may last as long as six hours if no meal is taken after the bath. In the tests made by the Chicago scientists, the baths were taken shortly after breakfast. Tests of the visual function were made before the bath and again at noon, some two-and-one-half hours after.

To take the bath, the subject sits on a chair with feet resting on another chair or stool and sprays water over his lower abdomen and hips. For the first three to

five minutes increasingly hot water, to the limit of comfort, is used. This is gradually changed to tap coldness (45 to 65 degrees Fahrenheit) and the cold water is continued for five to 15 minutes.

Over-all cold showers did not produce the same effects as the cold hip baths. The scientists believe this is because of the greater loss of heat in an over-all shower.

The cold hip baths produce their effect, it is believed, through the sympathetic nervous system.

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NUTRITION

Army Bread Can Be Made With Water from Ocean

► BREAD MAKERS for the Army, stranded on some far-away island in the Pacific, need not despair when their supply of fresh water and salt is running low—they can just dip their pans

into the ocean and use sea water instead.

Tests were made by the Quartermaster Corps Subsistence Research Laboratory in Chicago with samples of sea water taken from oceans around Florida, Virginia, California and Washington. The salt and mineral content of the water was determined, it was strained to remove seaweed, sand and other undesirable matter, and then treated with calcium hypochlorite for purification.

Instead of using 60 parts of fresh water and two parts of salt, it was found that 62 parts of salt water could be used. Otherwise, the bread was made in the usual manner. The finished product, according to a report issued by the War Department, showed only a slight variation from bread made according to the standard recipe.

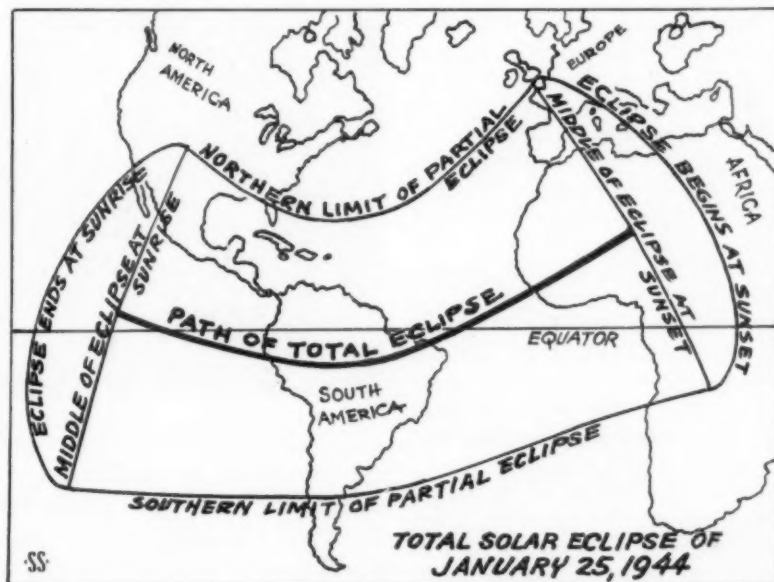
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ASTRONOMY

Jan. 25 Eclipse of Sun Visible from Part of U. S.

► THE TOTAL ECLIPSE of the sun on Tuesday, Jan. 25, will be best observed in South America and Africa, but spectators in southwestern United States can see a portion of the sun covered by the moon. (See *SNL*, Dec. 25, 1943)

The farther south spectators from Florida to Texas are, the greater the portion of the sun that will be hidden from them, because of their nearness to the path of totality. (See accompanying map.) For spectators in Miami, Fla., the partial eclipse will begin at approxi-



mately 9:58 in the morning and end at 10:59 (EWT); in New Orleans and Baton Rouge, La., 8:51 to 9:34 (CWT); in Austin, Texas, 8:37 to 9:36 (CWT);

in Santa Fe, N. M., the sun rises partially eclipsed, the eclipse ending at 8:26, Mountain War Time.

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MEDICINE

Sulfa Drugs Save Sailors

Instead of having makeshift appendectomies performed on board ship, surgeons advise special hold-over treatment until professional aid is available.

► A NEW ROLE for the sulfa drugs, that of saving sailors from appendicitis death or the hazards of makeshift operations for appendicitis, appears in a report by two U. S. Navy medical officers, Comdr. William L. Berkley and Lieut. Comdr. Harry C. Watkins. (*U. S. Naval Medical Bulletin*, January)

The public may be thrilled by stories of enlisted personnel performing appendectomies on shipmates at sea when no medical aid is available. Physicians and surgeons both in and out of the Navy, however, deplore such action.

"We believe more lives will be lost through surgery performed by unqualified persons than would be lost through a policy of delay of surgery, using proper treatment during the delay period," Lieut. Comdr. F. Glenn Irwin and Lieut. Comdr. Gaines L. Coates, declare in another report on appendicitis in the same issue of the *Naval Medical Bulletin*.

Even when a medical officer is aboard the vessel to perform the operation, the patient's welfare may be jeopardized by poor or deficient equipment, unfavorable weather conditions, unskilled assistants to the surgeon, and postoperative hazards due to enemy action, it is pointed out.

The postoperative complications seen in base hospitals as a result of appendectomies done at sea show how hazardous the ordinarily simple appendicitis operation may be under unfavorable conditions.

Sulfa drugs may help, Commander Berkley and Commander Watkins believe, by bringing the patient safely through the delay period until he can have his operation under good conditions. They give credit to sulfa drug treatment for just this in a small number of cases in which they tried it.

Sulfa drugs are also listed as part of the medical treatment advised by Commander Irwin and Commander Coates when operation must be delayed. They

report 400 consecutive operations without a single death in patients admitted to their hospital from shore stations and ships.

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MEDICINE-PHYSIOLOGY

"Motor Unfitness" Found Prevalent in College Men

► AN "APPALLING" number of young men entering college suffer from "motor unfitness," tests at the University of Illinois show. The tests and their results are reported by Dr. Thomas K. Cureton, of the University's School

of Physical Education, in the *Journal of the American Medical Association*.

Motor fitness, he says, means "capacity to run, jump, dodge, fall, climb, swim, ride, lift and carry loads and endure long hours of continuous work." Vitality necessary to the soldier, motor fitness is also needed by civilians for their safety and health, Dr. Cureton points out.

Many people, he says, slip on rugs, in the shower or pool or when dismounting from moving vehicles and suffer serious accidents because they lack kinesthetic sense and cannot tell when they are off balance and how to recover quickly.

Protected soft lives, dependence on motor vehicles, inefficient physical education, and lack of hard physical work are blamed by Dr. Cureton for the large number of men who enter college with motor unfitness.

Tests developed at the University of Illinois to rate students on motor fitness include ability to balance on one foot or toe for 10 seconds; ability to do 20 leg lifts and 20 situps in succession; ability to lift and set down once a person one's own weight; ability to do a standing broad jump of seven feet;



CUT BY EROSION—Accelerated wearing away leaves deep gullies such as this one which dwarfs the man at the right. Some of these gullies are as much as 800 feet deep. This photograph, taken in Kansu, China, was made by Dr. W. C. Lowdermilk, as were the beautiful pictures of China shown on these pages and of the yak on the cover of this SCIENCE NEWS LETTER.

and ability to run a mile in seven minutes.

When the complete test of 14 items was given to 2,628 men entering the University of Illinois, more than one-third (35.84%) failed to pass; almost one-fourth (23.71%) were classed as near failures; about two-fifths (40.45%) passed. In this same group 679 men (26.55%) could not swim at all and an additional two-fifths of the group could swim 75 feet but not as much as 100 yards.

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ENGINEERING

Prefabricated Houses Are Taken Down and Shipped

► MOVING TIME in Kingsford Heights, Ind., has a strange new war-time pattern, these days. Not the furniture, but the houses—200 of them—are being taken apart, packed, shipped, and then set up again, ready for housekeeping in Port Clinton, Ohio.

This first large-scale moving of prefabricated houses is being studied by Federal Public Housing Authority specialists in order to determine future policy for construction and transfer of these portable units.

Approximately 15% of the asphalt roofing had to be replaced when the houses were reassembled in Ohio, an investigator of the housing agency reported. This was a surprisingly low replacement figure, as the housing specialists anticipated a 50% loss. Interior partitions made of a cardboard product containing crushed rock did not take the punishment of the demounting, moving



HIDDEN SOIL HORIZONS—These layered records of the past, brought to light again by erosion, give evidence, Dr. Lowdermilk believes, of pulsations of climate way back in Pleistocene times many thousands of years ago.

and re-erecting nearly as well as did the plywood partitions.

After the nail holes were puttied and the walls repainted, the transported houses looked as good as new, a government investigator stated.

Of the 2,960 prefabricated houses originally built in Kingsford Heights, 1,200 are to be moved to areas where they are more urgently needed. After the present shipment of 200 houses is completed, consideration will be given to the transfer of the remaining units.

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AGRICULTURE

China Looks Forward

Her people are well fed, and are modernizing field management to get even better crops, according to U. S. Soil Conservation Service expert back from year in Orient.

See Front Cover

► THE PEOPLE of Free China are well fed and their morale is high, though like everybody else they don't want the war to go on a day longer than necessary, reported Dr. Walter C. Lowdermilk, of the U. S. Soil Conservation Service, who recently returned from a year's scientific work in the western lands

of the fighting Republic of the Orient. He and his American associates made a thorough study of Chinese land use and soil erosion problems, and offered suggestions toward their possible solution.

The exceedingly fine-grained, fertile soils of much of western and northwestern China are of the type known as loess, resembling soils of the same name found in our own Midwest and Pacific

Northwest. They are easy to cultivate and yield good crops, but they are also extremely susceptible to erosion by both wind and water. In the valleys and on the lower slopes they have been under cultivation for perhaps 4,000 years; up toward the hilltops, for only a few centuries.

Pressure of cultivation on the soil of China has been especially severe in the last few generations, Dr. Lowdermilk pointed out; in the last century the population of the country has multiplied three-fold.

Chinese farmers do not need to be educated in terracing, Dr. Lowdermilk stated; for centuries they have been building terraces to hold the soil of sloping fields. They also have some very practical tricks of their own in the business of damming gullies. However, the American techniques of strip-cropping and basin-listing are new to them, and can be profitably introduced into Chinese field management. When Dr. Lowdermilk and his group set up some demonstration fields, the neighboring farmers took notice of them immediately and came around to ask help in getting the new methods started on their own land.

"The Chinese farmer is not a hide-bound traditionalist," Dr. Lowdermilk explained. "He is a conservative because he has to be. He has little land, and knows he must get (Turn to page 58)

ASTRONOMY

Flash of Novae May Be Due to Action in Cepheids

► NOVAE may owe their sudden flash of brilliance to the union of the small dense cores of Cepheid stars, those variables of the heavens which increase and decrease in brightness with clock-like regularity, according to a theory developed by two British astronomers.

The two center cores whirl around each other within a large, tenuous atmosphere, which cloaks the cores so that the star does not appear double. The cores get closer and closer together until finally they unite into a single body.

At this point some of the stellar material may be thrown out into space in an attempt of the star to restore its stability, Dr. R. A. Lyttleton and F. Hoyle report in the *Monthly Notices of the Royal Astronomical Society* published in London.

As the dense center cores unite, the main body of the star may be torn away and the extremely hot surfaces underneath be exposed. The star would therefore shine for a time with much greater brilliance than its real surface temperature warranted, the Cambridge University astronomers explain.

Novae would be just another stage in the development of these Cepheid variable stars, according to the authors, who think it possible for a star to flare up in brightness enough to be called a nova more than once in its lifetime.

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PSYCHOLOGY

Child's Behavior Defects Should Be Corrected Early

► MANY PARENTS make the mistake of expecting school to make over a youngster and enforce the discipline they have neglected or to correct the behavior defects that have developed at home.

If Junior has been extremely sullen, unruly, or given to temper tantrums, or if Sister has been an overly docile child with no playmates or interest in children's games, the advice of a doctor, child psychiatrist or child guidance clinic should be sought. Such abnormal behavior is a sign of emotional difficulty that needs correcting just as much as poor eyesight or impaired hearing. If the trouble is deep-seated and serious, school routine and discipline are not likely to correct it. Instead, the

child may turn truant from school and get into trouble that might bring him into the courts.

Much of the responsibility for the child's ability to handle emotional problems, or lack of such ability, rests on the parents, the way they train him during his early years, and the home environment they provide for him. Schools also have some responsibility in seeing that the needs of the child, especially the teen-age child, are met.

The child from a home shadowed by misery and destitution may go to school hungry in body and insecure and fearful in his mental and emotional life. Even if his home is good in a material way, it may not provide him with a feeling of security and an opportunity to develop his self-confidence. The child who is over-protected by too anxious parents, or neglected by too busy ones, or misunderstood by parents who are careless of his needs may have serious difficulty in adjusting at school.

Scolding, punishments, stricter discipline at home or in school will only make matters worse. Instead, the child should be taken to a doctor or guidance clinic to have the cause of the trouble discovered and corrected.

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GEOLOGY

Giant Mud-Crack Patterns Puzzle Geologists

► PUZZLING patterns in the earth, like the polygonal mud-cracks formed when a bare river-bank or pond-bottom dries out but a hundred times larger, have been traced in a playa, or seasonal mud-flat, in the Animas valley in New Mexico by Dr. Walter Lang of the U. S. Geological Survey. (*Science*, Dec. 31, 1943)

Dr. Lang does not suggest what may have been the cause of the curious phenomenon. Ordinary mud-crack polygons are usually eight inches to a foot in diameter, with intervening chinks less than an inch wide. These giant patterns are 80 or 90 feet across, and the cracks that separate them, now filled in, weed-grown, and almost wholly obscured, are about three feet wide, but only an inch or so deep.

From ground level the patterns are practically undiscernible, Dr. Lang states. First knowledge of their existence came from air photographs, and confirmation was obtained by other similar pictures taken at his request by the Army Air Forces.

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IN SCIENCE

PUBLIC HEALTH

Birth and Death Rates Increase in 1943

► MARRIAGES and fatal accidents declined, births and deaths increased in the United States during 1943, it appears from the *Statistical Bulletin* (December 1943) issued by the Metropolitan Life Insurance Company.

When all the 1943 babies are finally counted by the Census Bureau, their number will probably be 3,200,000, the largest for any year in the history of the nation.

The war apparently can be credited with the increase in births, decrease in marriages by about 75,000 from the previous year to 1,725,000 in 1943, and the decrease in fatal accidents. The latter numbered about 91,000, which is 2,000 fewer than the previous year. The decrease is due almost entirely to the falling off in deaths in motor vehicle accidents.

The increase in births and birth rate was gratifyingly accompanied by a decrease in infant mortality. The general death rate for 1943 will be about 10.9 per 1,000 population, an increase of only 5% over 1942, which was the best health year on record. A large part of the increase in mortality is the result of a sizable increase in deaths at older ages.

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AERONAUTICS

Gyroscope Principle Used To Prevent Plane Spins

► AN INGENIOUS use of the gyroscopic principle, to prevent planes from going into dangerous flat spins, is proposed by J. D. Wilhoit of Chicago and N. F. Huber of Louisville. Anyone who has ever played with a toy gyroscope knows how difficult it is to push such a fast-spinning wheel out of its original position. The two inventors convert the landing-wheels of a plane into gyroscopes by attaching motors to rotate them rapidly in the reverse of their usual direction. This, they claim, tends to get the spin-threatened plane out of its dangerous position. Their invention has been granted patent No. 2,338,699.

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NE FIELDS

ENGINEERING

Edison Medal Awarded Dr. Vannevar Bush

► THE EDISON MEDAL, one of the highest honors in the field of electrical science and engineering, has been awarded to Dr. Vannevar Bush, president of the Carnegie Institution of Washington and director of the Office of Scientific Research and Development of the U. S. Office of Emergency Management.

The 1943 award was given to Dr. Bush "for his contribution to the advancement of electrical engineering, particularly through the development of new applications of mathematics to engineering problems, and for his eminent service to the nation in guiding the war research program."

The Edison Medal, founded in honor of Thomas A. Edison, is awarded annually. Formal presentation will take place at the meeting of the American Institute of Electrical Engineers on Jan. 26.

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ENGINEERING

Washington Scientists Oppose Dam Project

► PROPOSALS to build a high dam across the Potomac above Washington, due to be launched in Congress soon, are encountering the hostility of scientists in Washington, even in advance of their formal presentation. Latest to join the ranks of the opposition is the Biological Society of Washington, which has passed a set of resolutions condemning the scheme not only because the impounded waters would drown out the best nature preserve and recreation area in the Washington area, but also because the dam would constitute a military menace of the worst kind.

Calling attention to the devastation wrought in the Ruhr valley by the blasting of the Moeche and Eder dams last May, the resolution points out that the mass of water which would be loosed by the breaking of a dam in the Potomac gorge would surge over practically all government buildings except those on top of Capitol Hill, as well as the White House, the Navy Yard, the Pentagon

Building, the National Airport and the Army and Navy airfields situated near the river. If the wrecking of one industrial valley in Germany was worth the gamble of a few dozen planes, it is argued, the chance to do such vast damage to the very center of power in this country would be worth the stake of a hundred, or even a thousand, of the bigger, longer-ranged bombers which can be expected in any possible future war.

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AGRICULTURE

Cold Winter Winds Kill Enemies of Stored Grain

► COLD winter winds spell doom for potential attackers of stored grain, scientists of the U. S. Department of Agriculture report.

Few insect eggs or other forms of insect life, enemies of the granary, can survive low winter temperatures. And, as grain is an excellent insulator, even the summer heat takes a long time in making its way into the main body of the grain. The autumn chill usually arrives before any harm can be done, the entomologists explain.

To make the most of this natural refrigeration, they recommend painting the outer surfaces of granaries and grain tanks white in order to reflect the sunlight and absorb a minimum of heat.

Mild winters in the South make the problem much more difficult in that area. Granary enemies must be attacked in the balmy climates by means of fumigation, oiling or heating.

Science News Letter, January 22, 1944

ORDNANCE

Gyroscope-Controlled Glider Torpedo Invented

► A GYROSCOPE-controlled glider torpedo is the subject of patent No. 2,339,011, granted to H. A. Gurney of Encino, Calif. Once launched, automatic controls take over and hold the winged missile on a true line against the enemy ship or other target.

A feature of the torpedo is its suspension beneath the carrying plane in such a manner that its wings provide the necessary lift during flight. This, the inventor claims, will enable light, fast planes to carry relatively heavy explosive missiles into action, and be free to function as fighters as soon as they have released them.

Science News Letter, January 22, 1944

BOTANY

Russian Plant Scientist Honored by Americans

► A NOTED Russian research worker in plant physiology, Prof. N. G. Chododny of the now war-battered University of Kiev, has been voted a new honor by his American colleagues, in the award of the Charles Reid Barnes Life Membership in the American Society of Plant Physiologists. This award, given only once every five years, always goes to some outstanding foreign plant physiologist.

Prof. Chododny's investigations have been principally on the reasons why roots go down and stems go up in response to the stimulation of gravity. They have involved the study of plant hormones or chemical messengers, which are formed in one part of the plant and transported to the growing zones, there to produce changes in rates and direction of growth.

At the same time, the Society's awards committee voted American life membership to Dr. W. W. Thomas of Pennsylvania State College, who has done outstanding work on mineral nutrition of plants, which is basic to a more accurate and economic adjustment of fertilizer supplies.

Announcement of the awards was made by the chairman of the committee, Prof. R. B. Harvey of the University of Minnesota.

Science News Letter, January 22, 1944

ENGINEERING

Water Injection Method Conserves Reservoir Oil

► WATER can be used to conserve oil by means of a newly developed procedure described by W. L. Horner and D. R. Snow of the Barnsdall Oil Company at a meeting of the American Petroleum Institute in Chicago. By injecting water into underground oil reservoirs as withdrawals are made, the speakers explained, the original oil pressure is kept up to par.

Both newly discovered and partly depleted oil pools may use this method of maintaining underground pressure, providing that reservoir conditions are such that artificial water drive can be applied, the speakers added. Water injection has been used only on wells that are growing old; the method has hitherto not been considered suitable for pools in early stages of production.

Science News Letter, January 22, 1944



GOOD FARMING—Benching of cultivated slopes, by leaving narrow unplowed strips across slope and plowing across slope, has been in use for centuries by Chinese farmers. It is one of the most important measures to increase intake of rain into soil, to increase food production and to reduce and control soil erosion.

From Page 55

his living from that by methods that have been proved practical. But if you show him something new that proves to be even more practical, he is quick to

adopt the new way."

He added that he appreciated the interest and approval of the ordinary farmers of China more than he did that of the highest officials.

Science News Letter, January 22, 1944

PHYSICS

Electric Eye "Sees" Gas

► THE ELECTRIC EYE, or photoelectric cell, has another job added to its many: it is now used to "see" invisible gases and vapors in manufacturing plants, and warn of dangerous concentrations that might be injurious to workers.

An apparatus, with the electric eye as its key-piece, has been developed by scientists of E. I. du Pont de Nemours and Company and is now in successful use, particularly in detecting the presence of carbon disulfide.

The apparatus, called an ultraviolet

photometer, is based on the phenomenon of light absorption by gases. Most gases absorb light of some particular wavelength, in effect casting a shadow where that particular wavelength light should have fallen. In a spectrum the shadow is known as an absorption line.

The instrument, as used as a carbon disulfide analyzer, is so constructed that the air to be analyzed is pumped through several small chambers which filter out dust, oil and moisture, and then into a pair of parallel tubes 31 inches in length. The contaminated air runs into the first tube and then through a canister of activated charcoal which removes the carbon disulfide. The air then passes into the second tube. This makes possible a comparison of the purified with the contaminated air.

Rays of invisible ultraviolet light from a mercury lamp pass through the two tubes and fall upon a photocell mounted at the opposite end of each tube. Carbon disulfide, if present, absorbs light of a particular wavelength. No other atmospheric element has been found in factories where the instrument is used that absorbs this particular band of light. The operator knows immediately by the action of the photocell if carbon disulfide is present in the sample under investigation.

The instrument developed by du Pont can take quick "grab samples" or run continuous samples and give direct and instantaneous readings.

Science News Letter, January 22, 1944

In the production of the various *sulfa* drugs over 50 different chemicals are used.

Sawdust is being successfully used in Canada as a source of producer-gas for a substitute for gasoline to operate internal combustion engines; wood, charcoal, coke and coal are the more common fuels used.

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the Jewels



A WOMAN GIVES A MAN

MORE planes might be named Diamond Lil if pilots and crews knew what this woman knows—that bombers wear jewels!

This woman is one of a little group of war workers whose job is producing synthetic jewels for electric aircraft instruments. The jewels are tiny bearings for moving parts which must be as accurate, and are almost as small, as the parts of a fine watch. They are made from glass by a secret process at a mass production rate, but each jewel must pass an inspection as exacting as a jeweler's appraisal of a precious stone. These jewels, which women are giving men to fly by, are given in painstaking devotion to precision—in manufacture and inspection.

The development of these jewels is an example of the application of General Electric research and engineering to small things, as well as large. Before the war, and before G-E scientists developed a special process for making these jewels synthetically from glass, we used sapphires for these bearings—importing many of them. Think what it would mean, with America's thousands of planes requiring millions of instruments, if we were still dependent upon a foreign source!

Small things perhaps, these jewels a woman gives a man—but in war, as in love, there are no little things. General Electric Company, Schenectady, New York.

Hear the General Electric radio programs: "The G-E All-girl Orchestra" Sunday 10 p.m. EWT, NBC—"The World Today" news, every weekday 6:45 p.m. EWT, CBS.



This magnified glass jewel, one of several types, is actually smaller than a pin head. As one of the largest makers of aircraft instruments, and as a supplier of jewels to other instrument makers, General Electric is unofficial jeweler to many American planes.

GENERAL  ELECTRIC

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192,000 employees of General Electric are on their jobs producing war goods and buying over a million dollars of War Bonds every week to hasten victory.

BIOGRAPHY

William Emerson Ritter, 1856-1944

► PROFESSOR William E. Ritter, co-founder of Science Service and eminent scientist and philosopher, died at Berkeley, Calif., on Jan. 10, after a brief illness. He was 87 years old. He was president of Science Service from the time of its beginning in 1921, later becoming honorary president, which title he held at the time of his death.

Dr. William Emerson Ritter was born in Hampden, Wis., on Nov. 19, 1856. His childhood and youth were those of the typical American farm boy of early post-pioneer days, giving him plenty of opportunity to indulge his natural bent for natural history observation, in which an intelligent father encouraged him—except on occasions when he forgot errands on which he had been sent, in fascinated contemplation of the skull of a horse or cow found in the woods.

It was only natural that he should turn to schoolteaching. That is what all youngsters with a scholarly turn did at that period. The first institution of higher education, therefore, which he attended was the Wisconsin State Normal School, where he graduated in 1884.

But the process that was to make a better schoolteacher of him robbed schoolteaching of his services for a time. He had got a glimpse of the fair outline of organized science, and he wanted to see more. Out to the University of California accordingly he went, where Joseph LeConte was then in his heyday. Under such a teacher, and with such fellow-students as Vernon Kellogg and John C. Merriam, he rapidly found himself. When he received his bachelor's degree in 1888 he was not only competent in zoology, but had the beginnings of a philosophical outlook upon life in general well established in his mind.

Married Mary E. Bennett

During these early California days, the young Ritter met one of those rare phenomena of California, a Native Daughter, Mary E. Bennett. His mind was set upon her from the beginning; but he had first to finish service for the Leah of science, the doctorate in philosophy. He persisted until he received his master's degree at Harvard in 1891, married, and then went back to Harvard and received his Ph.D. in 1893.



WILLIAM EMERSON RITTER

As California had been the one place in all the world for him in his undergraduate days, so Harvard was the one place for his more mature studies. Here E. L. Mark was doing much toward putting American zoology on a par with the science as followed in European universities, while the philosophical hierarchy made famous by the names of Royce and Wundt was establishing its reign. Dr. Ritter always attributed the course his life took, synthesizing physical science with philosophy, exact and impersonal research with humanitarian applications, to this peculiar combination that then obtained at Harvard.

Back at Berkeley in charge of the pioneer department of zoology on the Pacific Coast, Dr. Ritter labored hard for many years at teaching, at research in laboratory and field, at liaison between the campus and the world.

One of his enterprises was a more or less nomadic marine biological station, which shifted from place to place on the coast, seeking the best location, hoping for more solid support. Into his laboratory one day wandered a big, blunt-spoken newspaper owner, who had a habit of booming disconcerting questions at people, E. W. Scripps. Dr. Ritter wasn't disconcerted. He answered the questions calmly, as fully as his in-

formation warranted, and confessed ignorance where he did not know. The two men liked each other and soon became firm friends.

This lifelong friendship between Dr. Ritter and Mr. Scripps, a strangely assorted pair of powerful minds, contrasting yet supplementary, resulted in the development of several joint enterprises of great scientific and social significance.

Built Scripps Institution

One of these was the building of the Scripps Institution for Biological Research, now the Scripps Institution of Oceanography, at La Jolla, Calif. Dr. Ritter became its first director in 1909, and remained in active charge until 1923. Mr. Scripps used to visit him frequently there, and talk endless hours. He was not much interested in "pure" research, and frequently said so, but he was constantly urging his friend to apply the methods of natural history investigation to "this damned human animal." Mr. Scripps was primarily a person-minded man.

Dr. Ritter's philosophical treatises, beginning with *The Unity of the Organism*, were more to Mr. Scripps' liking. His later work, *The Natural History of Our Conduct*, would have pleased his friend still more; but it was not finished until after Mr. Scripps had died.

Science News Letter, January 22, 1944

E. W. and W. E.

► ONE of the most fruitful of intellectual partnerships was that of E. W. and W. E. Both were philosophers and both were builders.

E. W. Scripps was blunt, outspoken, perpetually inquisitive. Men feared him and worshipped him. He had an intense interest in people.

W. E. Ritter was a scientist, quiet in manner, perpetually inquisitive as to the ways of nature and nature's creatures. His biological teaching inspired many. Like Darwin, he studied human conduct.

The death of Dr. Ritter ends the partnership in its living phase. For even after E. W. Scripps passed from everyday activity to become a tradition (he died in 1925), his inspiration dominated Dr. Ritter's researches into the ways of

woodpeckers, little children and humanity in general.

Like two opposite poles of a magnet, the great newspaper publisher and the great scientist attracted each other. And the field of their influence was great.

Science Service is one of the major projects upon which they collaborated. The first world war had visualized the importance of science to the world. E. W. and W. E. had worked together on other projects—the study of the sea which both loved, an inquiry into population. They saw the necessity of making science understandable to the public. In their discussions of the way the world is going they agreed that the scientists themselves must see to it that their findings reach the ordinary person in comprehensible form.

Science Service as the institution for the popularization of science was born of the enthusiasm and wisdom of E. W. and W. E., given economic independence by E. W. and sold to the scientists by W. E. Under the watchful eyes of both, it took up its work of spreading to the public through newspapers and other agencies the facts and implications of science.

Dr. Ritter was an important personality in the growth of American biology, particularly on the west coast where he organized and headed the Scripps Institution for Biological Research, affiliated with the University of California. In his latter years as professor emeritus

he gave aid and encouragement to the study of little human animals at play in a Berkeley nursery school. He worked upon his philosophy of the unity of the

organism, an idea that promises to live on in the thought stream of science.

W.D.

Science News Letter, January 22, 1944

MEDICINE

Identical Chemicals

Two mold cousins are found to produce the same germ-fighting substance, called both clavacin and patulin, which was thought for a while to be common cold remedy.

► DISCOVERY that two different molds produce the same germ-fighting chemical is announced by Dr. I. R. Hooper, Dr. H. W. Anderson, Dr. P. Skell and Dr. H. E. Carter, of the University of Illinois. (*Science*, Jan. 7)

The chemical was named clavacin by Dr. Selman A. Waksman and associates of New Jersey State Agricultural Experiment Station, who discovered it was produced by the mold, *Aspergillus clavatus*. It was named patulin by British scientists, Dr. Harold Raistrick and associates, who found it was produced by the mold, *Penicillium patulum*.

Patulin was at first heralded as an

effective remedy for the common cold, but subsequent reports were not so promising and doctors generally are awaiting further studies before drawing any conclusions about it.

Patulin and clavacin have the same physical and chemical properties and are beyond doubt identical, the Illinois scientists declare. The molds that produce them belong to distinct but related genera, that is, they have about the same degree of kinship as apples and pears, although the mold from which patulin was obtained is more closely related to *Penicillium notatum*, from which comes the famous penicillin.

Science News Letter, January 22, 1944

MEDICINE

Liver Damage Warning

► A WARNING that "in nearly every case of malaria" the liver may be damaged to some extent is issued by Maj. I. Arthur Mirsky, Miss Ruby von Brecht and Maj. Leonard D. Williams (*Science*, Jan. 7) The experiments on which it is based were done in the laboratory of the station hospital of the Miami Beach Air Training Base.

The liver damage is not believed due to either atabrine or quinine given in treatment of malaria, since in several cases the test showing liver damage was done before treatment was started.

Every student of malaria, the scientists point out, knows that enlargement and tenderness of the liver and even jaundice may occur in various forms of malaria. Very few, however, have given attention to the possibility of disturbance of liver function and associated derangements in metabolism.

Treatment of malaria, Major Mirsky and his colleagues urge, should be revised to include measures for restoring the liver to normal. Such measures are giving diets high in carbohydrates, proteins and vitamins, and not "giving only

fluids during the course of the fever," as is advocated by some leading authorities on malaria.

Science News Letter, January 22, 1944

GEOGRAPHY

Geographical Society Honors British Scientists

► TWO of the gold medals of the American Geographical Society will be awarded to British scientists this year. The Charles P. Daly Medal will go to Sir Halford John Mackinder, English geographer and statesman, and the Cullum Geographical Medal to Arthur Robert Hinks, secretary of the Royal Geographical Society since 1915.

Sir Halford Mackinder in 1919 in a book warned the Western democracies against the danger of a mighty land power gaining control of the interior of the Eurasian continent. The book is said to have exerted a considerable influence on the development of geopolitics in Germany.

Science News Letter, January 22, 1944



DR. RITTER in 1940

Do You Know?

The only living wild mammal with four horns is the four-horned antelope, one of the smaller hoofed animals of India and Burma.

The *gaur*, or Indian buffalo, found in hilly parts of Burma, furnishes good meat but is a very dangerous animal if wounded and cornered.

Nicotine is distributed better in greenhouses for insecticidal purposes when mixed with Freon and released with it from a compression chamber.

Bird lovers, unable to get customary *winter foods* for neighborhood wild birds, may substitute oatmeal, hominy, grits, peanut butter, nuts, fruits, and dry breadcrumbs.

Some 3,000,000 gallons of *alcohol* will be produced each year in a new plant just opened in Australia; the product will be used mostly to blend with imported gasoline.

Alaska has but one person for every 10 square miles of territory, in contrast to 413 to every 10 square miles in the United States proper, 6,850 in Great Britain, and 3,750 in Japan.

Gasoline, lubricating oil, plastics and other products will be produced experimentally from Kentucky *coal* at a pilot plant under construction at the University of Kentucky; smokeless fuel will also be produced.

Under supplementary government orders just issued, electric and gas *utilities* may now be extended by short lines to serve a substantial number of users; until now they could be extended only to meet urgent war needs.

A new *glass cleaner*, recently patented, consists of a water solution of from 20% to 50% of methyl, ethyl or propyl alcohol with a small amount of tetra sodium or potassium pyrophosphate to prevent haze formation.

In Australia, government *medical men* supervise 48 casualty centers maintained at munition establishments; more than 500,000 examinations for industrial diseases were made during the past year, and 10,000 X-rays were taken.

PHYSICS

Physicists in Industry

Because this war is a "physicist's war," prediction is made that physics will have post-war popularity like that of chemistry after first World War.

► POST-WAR employment of physicists in industries will far exceed pre-war figures, Dr. Albert W. Hull of the General Electric Co. believes.

"Physics occupies a place in this war similar to that of chemists in the first world war," he stated in his presidential address to the American Physical Society in New York, "and hence may expect a post-war popularity comparable to that which chemistry enjoyed in the twenties." The part played by mechanization in this war is the cause of its being called "a physicist's war."

"Research is coming to be looked upon as an industrial vitamin, without which an industry becomes decadent and its products obsolescent," Dr. Hull stated.

Production-improvement and the development of new products are the principal jobs of physicists in industries. Pure research, aiming "to obtain knowledge rather than to make something," is primarily the work of endowed and state-supported institutions; but, Dr. Hull feels, industry can afford to en-

gage in pure research in its own laboratories because "new discoveries lead to new and unexpected applications, which may be epoch-making."

Science News Letter, January 22, 1944

Microscopists Meet

► THE FIRST official meeting of the new Electron Microscope Society of America was held jointly with the meeting of the American Physical Society. This technical organization was established in Chicago a year ago by some 75 scientists who are actually doing work in the field of electron microscopy.

The electron microscope, an epochal development in scientific instruments, uses electrons instead of rays of light, and magnetic or electrostatic fields instead of glass lenses. It is from 50 to 100 times more powerful than the strongest optical microscopes. With its use magnifications up to 100,000 diameters are obtainable.

Science News Letter, January 22, 1944

CHEMISTRY

Chemicals From Coal

► ORGANIC chemicals, now extracted principally from petroleum, will probably be derived more largely from coal in post-war days as the oil reserves become more and more exhausted. The extraction of simple individual chemicals from coal is a difficult process at present because of its highly complex composition. Intensive studies at the Coal Research Laboratory of the Carnegie Institute of Technology may result in methods to make the process more simple and economical.

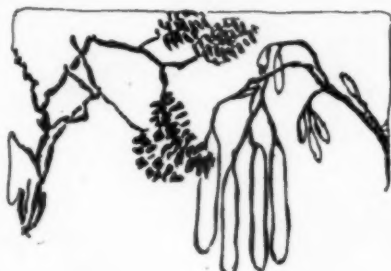
Chemicals are obtained from petroleum by relatively simple processes because the crude oil secured from the earth consists of many individual compounds easily separated and processed. They are now obtained from coal principally as a coke by-product. This by-product is a mixture of aromatic compounds called coal-tar. Coke and gas are

the objects of the coking process; the coal-tar is incidental, and normally only about one-half of it is used to obtain chemicals.

As a wartime measure all the coal-tar products are now used, mostly to obtain the essential toluene for TNT, benzene for aviation fuel, and styrene for synthetic rubber. The plastics industry also is a consumer of coal-tar compounds.

Production of coal-tar is now dependent on the amount of coke needed in the trade. The steel industry is the principal user of coke. To increase the output of coke and coal-tar, additional uses of coke must be found either as a fuel, or to furnish pure carbon for many commercial purposes. Coke is principally carbon. Present studies are concerned with how coal-chemicals production can be economically separated from coke production.

Science News Letter, January 22, 1944



Spring Is a Forward Wench

► SPRING is a forward wench, unwilling to wait for her proper cue, taking the slightest excuse to edge herself upon the stage, for moments at least, while white-bearded old Winter is supposed to have a monopoly of the scene for his rantings and roarings.

Let only the briefest of thaws intervene in the hard-frozen weeks of January, even well toward the north, and precocious flowers will burst forth, cold-defying little birds will suddenly appear in sheltered or sunny spots, and animals that are supposed to sleep all winter long will stir in their hibernation and venture out for a stretch and a look-see.

Already, in the latitude of the Tennessee Valley, and certain to come in the next couple of weeks even as far up the map as the southern Great Lakes, are such hardy harbingers as alder catkins and skunk cabbages, soon to be followed by pussywillows. Of course, the stringy yellow petals of witch-hazel flowers are likely to appear on any odd warm day in winter, and violets will sturdily bloom under the shelter of a few leaves.

About now, too, horned larks will be appearing in sunny meadows and prairie stretches in the Midwest, their thin, sweet notes piping defiance to the blustering challenge of the winds. In more easterly woods as well as in timber-belts in the states bordering the Mississippi, the loud, bold notes of cardinals are apt to ring all winter long. Birds like these never go far south in their migrations, and venture northward whenever relaxation in winter weather gives them the slightest leave.

Not all winter-sleeping animals go deep into hibernation's almost deathlike

state. Many, especially squirrels and sometimes even black bears, may awaken in late winter, come blinking out for a whiff of fresh air and perhaps a little food if they can find it, and then go back to bed again.

This is true of hibernating insects no less than of mammals. On warm winter days, when the sun is growing stronger, you may see bees crawling about the

hive entrance, or box-elder bugs that have been hiding no one knows where, or woolly-bear caterpillars going humpity-hump across open stretches of sidewalk or bare earth.

Winter is a tyrant, and his subjects, always in their hearts really liegemen of Spring, are in a constant state of ill-suppressed insurrection.

Science News Letter, January 22, 1944

Books of the Week

► BETTER understanding of neuroses, of more serious mental diseases, of malingering and hysteria, and of the effects of injury on the mind will come from reading *THE MIND OF THE INJURED MAN*, by Joseph L. Fetterman (*Industrial Medicine Book Co.*, \$4). While some portions of the book, such as those on diagnosis and treatment, seem addressed primarily to physicians, it is on the whole so free of technical terms and so clearly and simply written that many non-medically trained persons, especially attorneys and others concerned with compensation procedures, will be able to read it with ease as well as benefit.

Science News Letter, January 22, 1944

Just Off Press

AMMUNITION: Its History, Development and Use 1600-1943—.22 BB Cap to 20 mm. Shell—Melvin M. Johnson, Jr., and Charles T. Haven—*Morrow*, 361 p., illus., charts, \$5.

ATLAS OF ISOTHERMAL TRANSFORMATION DIAGRAMS—U. S. Steel Corp., 104 p., illus., free.

BEHIND THE STEEL WALL: A Swedish Journalist in Berlin 1941-43—Arvid Fredborg—*Viking*, 305 p., illus., \$3.

A BIO-BIBLIOGRAPHY OF ANDREAS VESALIUS—Harvey Cushing—*Schuman's*, 229 p., illus., \$15. Limited ed. (800 copies).

CIVILIZATION AND DISEASE—Henry E. Sigerist—*Cornell Univ. Press*, 225 p., \$3.75.

COOKING DEHYDRATED FOODS—War Dept.—*Gov. Print. Office*, 73 p., illus., 15c, paper, Tech. Man. 406. An Army cook book.

EMULSION TECHNOLOGY: Theoretical and Applied; A Symposium—*Chemical Pub.*, 290 p., illus., \$5.

ENZYME TECHNOLOGY—Henry Tauber—*Wiley*, 275 p., illus., \$3.50.

FARM PEOPLE AND THE LAND AFTER THE WAR—Murray R. Benedict—*Nat. Planning Assn.*, 26 p., illus., 25c, Planning Pamphlets No. 28, paper.

FOOD, WAR AND THE FUTURE—E. Parmelee Prentice—*Harper*, 164 p., illus., \$2.50.

A GRAPHIC SUMMARY OF FARM ANIMALS AND ANIMAL PRODUCTS—Bureau of Agr.

Econ.—*Gov. Print. Off.*, 88 p., illus., 15c, paper, Misc. Pub. No. 530.

HANDBOOK FOR BOYS—*Boy Scouts of America*, 680 p., illus., 50c, rev. ed., paper.

LABORATORY MANUAL OF BIOCHEMISTRY—Benjamin Harrow and others—*Saunders*, 132 p., illus., paper, \$1.50, 2nd ed.

PATHOLOGY IN FOREST PRACTICE—Dow Vawter Baxter—*Wiley*, 618 p., illus., \$5.50.

A PRIMER OF ELECTRONICS—Don P. Cavert—*McGraw-Hill*, 235 p., illus., \$2.

RUBBER RED BOOK: Directory of the Rubber Industry—*The Rubber Age*, 579 p., illus., \$5.

THE SEVEN MYTHS OF HOUSING—Nathan Straus—*Knopf*, 322 p., illus., \$2.75.

THE SOURCES OF LIFE—Serge Voronoff—*Bruce Humphries*, 240 p., \$3.50.

STEEL IN ACTION: Science for War and Peace Series—Charles M. Parker—*Jaques Cattell*, 221 p., illus., \$2.50.

TECHNOLOGY AND LIVELIHOOD: An Inquiry Into the Changing Technological Basis for Production as Affecting Employment and Living Standards—Mary L. Fledderus and Mary van Kleeck—*Russell Sage Foundation*, 237 p., \$1.25.

THE YOUNG CRAFTSMAN: Descriptions of Over 450 Easy Craft Projects—*Pop. Mech. Press*, 224 p., illus., \$1.

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• New Machines and Gadgets •

✿ A BAYONET which closes like a jack-knife blade into a protecting slot in an extension of the rifle stock has just been patented. It can be locked in either an extended or closed position.

Science News Letter, January 22, 1944

✿ ADJUSTABLE thumbtacks of a type recently patented can be made longer or shorter, just like the lead in a mechanical pencil, by turning a nut in the head. Screw threads on the shank control the length of the tack.

Science News Letter, January 22, 1944

✿ RUGS and carpets may be thoroughly cleaned by the addition of a scrubbing attachment to the vacuum-type floor cleaner. This device, just patented, holds a scrubbing solution which is mechanically ejected under the revolving brushes.

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✿ TUBES in the radially mounted battery of collimators shown in the picture contain tiny illuminated cross threads, somewhat like those in a telescope, which look like distant stars seen by a navigator using a sextant. These "indoor heavens" are used to calibrate and test aircraft sextants before delivery to the armed forces.

Science News Letter, January 22, 1944

✿ LEATHER trimmings and parts of hides not generally used are processed with a new chemical compound to make a product suitable for shoe soles and other purposes. It is claimed to compare favorably with sole leather in flexibility, resiliency and moisture absorption.

Science News Letter, January 22, 1944

✿ SPRING BLADES, and razors to hold them, are claimed to give better shaves and to have greater resiliency and rigidity than ordinary types. The double-edged wafer type blade has a pair of longitudinal parallel springs of the same material as the blade. The razor of this patented device is designed to hold the blade firmly in place.

Science News Letter, January 22, 1944

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Question Box

AGRICULTURE

What methods are Chinese farmers employing to control erosion? p. 55.

ASTRONOMY

What parts of the U. S. will be in the path of partial eclipse of the sun on Jan. 25? p. 53.

BIOGRAPHY

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